

## PUBLICATIONS RESULTING FROM THIS GRANT

1994 Levin, L.A., G. Plaia and C. Huggett. The influence of natural organic enhancement on life histories and population structure of bathyal polychaetes. In C. Young and K. Eckelbarger, eds. Invertebrate reproduction, larval biology and recruitment in the deep-sea benthos. Columbia Univ. Press, New York, pp. 261-283

1994 Levin, L.A. Paleoecology and ecology of xenophyophores. *Palaios* 9: 32-41.

1994 Levin, L.A., E.L. Leithold, T.F. Gross, C.L. Huggett, and C. DiBacco. Contrasting effects of substrate mobility on macrofaunal assemblages inhabiting two high-energy settings on Fieberling Guyot. *J. Mar. Research* 52: 489-522.

1995 Wishner, K.F., C.J. Ashjian, C. Gelfman, M. Gowing, L. Kann, L.A. Levin, L.S. Mullineaux, and J. Saltzman. in press. Pelagic and benthic ecology of the lower interface of the eastern tropical Pacific oxygen minimum zone. *Deep-Sea Res.* 42: 93-115

1995 Levin, L.A. and C. DiBacco. The influence of sediment transport on short-term recolonization by seamount infauna. *Mar. Ecol. Progr. Ser.* 123: 163-175.

1997. Levin, L. and S. Edesa. The ecology of cirratulid mudballs on the Oman Margin. *Marine Biology* 128: 671-678.

In Press. Levin, L.A., J. Gage, P. Lamont, L. Cammidge, A. Patience and C. Martin. Infaunal community structure in a low-oxygen organic rich habitat on the Oman margin. In: L. Hawkins, S. Hutchinson, A. Jenson, J. Williams and M. Sheader, eds. *Responses of Marine Organisms to Their Environment*. 30th European Marine Biology Symposium. Southampton, Southampton Oceanography Centre.

In Press. Thistle, D. and L. Levin. The effect of experimentally increased near-bottom flow on metazoan meiofauna at a deep-sea site, with comparison data on macrofauna. *Deep-Sea Research*.

In Press. Levin, L.A. and J.D. Gage. Relationships between oxygen, organic matter and the diversity of bathyal macrofauna. *Deep-Sea Research*.

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13. ABSTRACT (Maximum 200 words) Studies of bathyal settings in the Pacific and Indian Oceans indicate that macrobenthic communities are strongly influenced by abiotic factors including topography-induced flow, substrate mobility, bottom-water oxygen availability and organic-matter inputs. Mensurative and manipulative experiments conducted on Fieberling Guyot demonstrated that infaunal species composition, lifestyles, living positions, and colonization rates and mechanisms vary with sediment transport regime. Studies of the benthic fauna within oxygen minimum zones of the Oman margin (NW Arabian Sea) and on a seamount in the eastern Pacific suggest that oxygen and organic loading together affect macrobenthic species composition, diversity, and bioturbation potential. Strong zonation of mega- and macrobenthic communities was observed across the lower boundary of both oxygen minimum zones. Multiple regression of bathyal macrobenthic data from the Pacific and Indian Oceans indicate that together depth, latitude, sediment organic-carbon content and bottom-water oxygen concentration explain 52-87% of variation in measures of species diversity. Within oxygen minimum zones, bottom-water oxygen most affects species richness, while organic matter availability controls the distribution of individuals among species (evenness). Further understanding of marine benthic community structure will derive from investigation of interactions among abiotic factors, particularly those influenced by human activity. See attached listing of publications resulting from this grant.				
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